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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BARRY SCHEIRER, KEVIN WICKLINE, DAVID BECKER,
JEFFREY HART, and ALAN HORNBERGER

Appeal 2010-012542
Application 10/599,322
Technology Center 3700

Before TONI R. SCHEINER, DEMETRA J. MILLS, and ERIC GRIMES,
Administrative Patent Judges.

GRIMES, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to an ultrasound probe, which the Examiner has rejected as indefinite and obvious. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

The Specification discloses an ultrasound probe with “a transducer array which is moved to scan a patient with ultrasonic energy. The array is located in a fluid chamber ... which is enclosed by an acoustic window end

cap" (Spec., abstract). The Specification further discloses that the "acoustic window cap is coated with a thin conductive layer ... which shields the transducer and its motive mechanism from EFI/RFI emissions" (*id.*)

Claims 1-15 are on appeal. Claim 1 is the only independent claim, and reads as follows:

1. An ultrasound probe which is shielded from electronic emissions comprising:
 - an ultrasonic transducer located in a fluid chamber;
 - a movable mechanism on which the transducer is mounted for scanning of the transducer;
 - an acoustic window enclosing the fluid chamber through which ultrasonic energy is transmitted or received; and
 - a conductive layer lining the acoustic window which provides electronic shielding of the fluid chamber and the transducer mechanism within the fluid chamber and which is coupled to a reference potential.

The claims stand rejected as follows:

- Claims 1-15 under 35 U.S.C. § 112, second paragraph;
- Claims 1-13 under 35 U.S.C. § 103(a) in view of Finsterwald¹ and Talbot;²
- Claim 14 under 35 U.S.C. § 103(a) in view of Finsterwald, Talbot, and Smith;³ and
- Claim 15 under 35 U.S.C. § 103(a) in view of Finsterwald, Talbot, and Sleva.⁴

¹ Finsterwald et al., US 4,802,458, Feb. 7, 1989

² Talbot et al., US 6,182,341 B1, Feb. 6, 2001

³ Smith et al., US 5,311,095, May 10, 1994

⁴ Sleva et al., US 5,488,954, Feb. 6, 1996

I.

The Examiner has rejected claims 1-15 under 35 U.S.C. § 112, second paragraph, as indefinite on the basis that the phrase “transducer mechanism” lacks antecedent basis (Answer 3).

We will reverse this rejection. As noted by Appellants (Appeal Br. 6), claim 1 recites “a moveable mechanism on which the transducer is mounted” (Appeal Br. 6). The Specification describes “a transducer array which is moved to scan a patient with ultrasonic energy” (Spec., abstract). When read in light of the Specification and in the context in claim 1, therefore, the limitation of “the transducer mechanism” would be understood to refer to a moveable mechanism on which the transducer is mounted.

II.

The Examiner has rejected all of the claims as obvious in view of Finsterwald and Talbot, by themselves or combined with either Smith or Sleva. The same issue is dispositive for all three rejections.

The Examiner finds that Finsterwald discloses an ultrasonic probe that meets most of the limitations of claim 1, except that Finsterwald “fails to disclose a conductive layer lining the acoustic window ..., coupled to a reference potential” (*id.* at 3-4). The Examiner finds that Talbot discloses an ultrasonic probe with an “acoustic window 56 and a ... conductive layer 54 (‘RFI shield’)” that is coupled “to a reference potential ‘ground’ by connection to ‘ground flex circuits’” (*id.* at 4). The Examiner further finds that it is well known in the art “to have ground flex circuits in an electrical system in order to provide a common electrical return path to electrical current (i.e. electrical ground)” (*id.*).

The Examiner concludes that it would have been obvious to add Talbot's conductive layer (RFI shield) to Finsterwald's acoustic window "in order to provide a radio-frequency interference shield" (*id.*). The Examiner further concludes that it would have been obvious "to have modified Finsterwald such that the RFI shield is electrically grounded through the ground flex circuits in order to provide electrical protection" (*id.*).

Appellants contend, among other things, that the Examiner has not explained how the cited references would have made obvious the claimed ultrasound probe with "a conductive layer lining the acoustic window ... which is coupled to a reference potential" (Appeal Br. 9). Appellants contend that Talbot's reference to a flex circuit (col. 5, ll. 4-8), which the Examiner cites as showing that the conductive layer is coupled to a reference potential, does not describe coupling the conductive layer to a reference potential (*id.*). Appellants argue that "[c]oupling the RFI shield to a ground conductor of the flex circuits would act to inject RFI interference from the shield directly into the ultrasound signal path, making the problem of RFI interference worst [sic], not better" (*id.*). Appellants argue that it "is not clear from Talbot ... how the RFI shield is electrically connected" (*id.*).

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). "After evidence or argument is submitted by the applicant in response, patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument." *Id.*

Here, we agree with Appellants that the Examiner has not adequately shown that the cited references would have made obvious “a conductive layer lining the acoustic window … which is coupled to a reference potential.” The portion of Talbot that the Examiner cites as describing this limitation (Answer 4) reads as follows:

FIG. 2 illustrates a cross-sectional view of a transducer array 50.... The array 50 includes an acoustic stack 52, an RFI shield 54 and a low loss acoustic window 56. The acoustic stack 52 includes a backing block, signal and ground flex circuits, piezoelectric crystal and, if desired, acoustic matching layers.

(Talbot, col. 5, ll. 1-8.)

As Appellants have argued, this section does not discuss connection of the RFI shield to a reference potential, as recited in claim 1, or even to the ground flex circuit of Talbot’s device. The Examiner did not respond with any specificity to Appellants’ argument on this point (*see* Answer 5). Therefore, we conclude that the Examiner has not carried the burden of showing, by a preponderance of the evidence, that the claimed invention would have been obvious based on Finsterwald and Talbot. We reverse the rejection of independent claim 1 and dependent claims 2-13.

We also reverse the rejections of claims 14 and 15 under 35 U.S.C. § 103(a), because these rejections rely on the findings with respect to Finsterwald and Talbot discussed above, and the Examiner relies on Smith and Sleva only to show that limitations of the dependent claims would have been obvious.

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Application 10/599,322

SUMMARY

We reverse the rejections of claims 1-15 under 35 U.S.C. § 112, second paragraph, and under 35 U.S.C. § 103(a).

REVERSED

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